

## CLAIMS

1. A method of correcting coordinate measurement errors produced by the position measuring devices of coordinate measuring machines due to vibrations of parts of the machine comprises the steps of:
- 5       measuring the accelerations of a moving part of the machine,  
          double integrating the measured acceleration values to produce signals indicative of the displacement of the machine part due to the accelerations,  
          producing signals indicative of the displacement of the machine part from the position measuring devices of the machine,
- 10       using a data fusion algorithm, processing the two displacement signals so obtained to correct the measured values of the displacement produced by the machine for vibrations of the moving part.
- 15   2. A method according to claim 1, wherein the accelerations of said moving part are measured along a linear axis of the machine.
3. A method according to claim 1, wherein the accelerations of said moving part are angular accelerations.
- 20   4. A method according to any preceding claim wherein the step of measuring the accelerations of a moving part of the machine includes measuring the accelerations both of the moving part and of at least one of said position measuring devices along an axis of the machine, and the step of double integrating the difference between the
- 25   accelerations of the moving part and of the position measuring device in the direction of said axis.
5. A method according to claim 1, wherein the displacement signals produced by double integration of the measured acceleration values are processed in a scaling
- 30   matrix in order to produce data with the same measurement units as those produced by the measuring devices of the machine.

6. A method according to claim 1, wherein the signals indicative of the displacement of the moving part of the machine due to the accelerations thereof are filtered through a high pass filter before being processed using the data fusion algorithm.

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7. A method according to any preceding claim, wherein the signals indicative of the displacement of the machine produced by the measuring devices of the machine are filtered through a low pass filter before being processed by the data fusion algorithm.

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8. A method according to claim 1, wherein both the linear and angular accelerations of the moving part are measured and the angular accelerations of the moving part are used to calculate a direction matrix which describes the orientation of the axes of the linear accelerometers relative to the linear axes of the machine.

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9. A method according to any preceding claim wherein the moving part of the machine comprises a measuring probe carried by the machine.

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10. A method according to any one of claims 1 to 8 wherein the moving part of the machine comprises a probe head carried by the machine and to which a measuring probe is connected.

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